

Material Separation Plan for the Diversion of Mercury

(MSP3)

July 1, 2004 – June 30, 2006

**Wheelabrator Saugus J.V.
Saugus, MA.**

March 2004

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1) Introduction

In 1998, the Massachusetts Department of Environmental Protection promulgated regulations governing the emissions from Municipal Waste Combustors (MWCs) [310 CMR 7.08 (2)]. Section 7.08(2)(f)(7)(a) requires that owners or operators of MWCs prepare and submit a materials separation plan (MSP) for the diversion of mercury-bearing products from municipal solid waste. MSP1 was implemented on January 1, 2000 and completed on June 30, 2002. MSP2 was implemented on July 1, 2002 and will be completed on June 30, 2004.

2) Facility Description

The Wheelabrator Saugus waste-to-energy facility consists of two, identical mass-burn, municipal waste combustion (MWC) units, each with a capacity to combust 750 tons of municipal solid waste per day. The facility is located at 100 Salem Turnpike, Saugus, MA.

3) Goal of the Plan

The overall goal of this Material Separation Plan (MSP) for the Wheelabrator Saugus municipal waste combustion facility is to attempt to divert mercury-containing products from the municipal solid waste stream that potentially could be delivered to the Wheelabrator Saugus facility. To accomplish this goal, Wheelabrator Saugus will attempt to educate municipal officials, school officials, health care professionals, the general public and businesses regarding the need to divert mercury-containing products from the municipal solid waste (MSW) stream and to provide a source of information concerning proper disposal. Wheelabrator Saugus also will provide resources for those that wish to properly dispose of and recycle their mercury-containing products.

4) Plan Development Process

The development of MSP3 was accomplished through numerous discussions with the community coordinators for the Mercury Recovery Program, municipal officials in Contract Communities, DEP staff and School officials. In addition, input was obtained from discussions with attendees at the Stakeholders meeting that took place in February 2004.

5) Target Sectors

The target sectors for this Plan are the general public, local Health and Building Departments, plumbing, electrical and building contractors, schools and dentists within the Wheelabrator Saugus service area.

6) Service Areas

The Wheelabrator Saugus facility serves eight (8) communities (Contract Communities) (see Table 1) and one business (General Electric-Lynn) under long-term contracts. Additionally, two (2) communities and a commercial account are

served under short-term contracts. Non-contract or "spot market" customers that can vary from day-to-day and year-to-year use the remainder of the solid waste disposal capacity of the facility.

7) Description of Activities

a) Outreach/Education

i) Goal

The goal of the Outreach/Education portion of MSP3 is to educate the general public about the potential effects of mercury on human health and the environment. Also, its goal is to inform residents, municipal officials, health professionals, contractors and school officials about common mercury-containing products, proper handling of mercury containing devices and how to utilize the community based collection program for the proper disposal of mercury and products containing mercury.

ii) Regional

(1) General Discussion

Wheelabrator Saugus proposes to work in conjunction with the other MWCs subject to 310 CMR 7.08(2)(f) to continue the development and implementation of the regional outreach/education program.

The five MWCs subject to 7.08(2)(f) have service territories that range from the Atlantic coast to Worcester and from New Hampshire to Connecticut. All of these facilities also have a percentage of their waste coming from non-specific "markets". Therefore, the Regional outreach/education program, in addition to targeted local programs, has the ability to reach the greatest numbers of people and businesses.

To coordinate and administer this Regional program, the five MWC's have retained the services of the Integrated Waste Services Association (IWSA).

The Regional program will not target specific municipalities in Massachusetts, but will focus on development and delivery of generic messages to educate consumers and others who handle mercury products. These messages may include: identification of mercury-containing products, efforts to raise awareness of health risks of improper disposal of mercury products (thermometers, fluorescent lighting, etc.) in the normal course of residential and commercial refuse collection, and providing consumers and others who handle mercury products with information concerning the proper method of recycling and/or disposal of such products.

The Regional program will use mass communication channels to reach the greatest number of Massachusetts' citizens, as well as smaller subsets of high-end users of mercury products, with specific action steps they can take to help ensure that mercury containing products are properly recycled and/or disposed.

Although businesses may have the greatest volume of mercury-containing products to dispose of, every employer or business owner is also a consumer.

(2) Regional Outreach Programs

The following summarizes the activities to be completed by the IWSA. Each activity listed below will be implemented between July, 2004 through June, 2006. Specific timelines are provided for each activity, but times are estimates only.

Similarly target populations are provided with each activity, but given the wider reach of mass media, it is probable that people outside the targeted groups will be affected.

As requested by the Massachusetts Department of Environmental Protection and consistent with MSP2, each activity provided herein describes the activity including its education value, the targeted population, an estimated timeline for implementation, estimated cost, and an explanation of where the activity will take place (i.e., the specific medium for the message). Each activity described herein does not contain a discussion of the evaluation process, which instead is provided more generally because one evaluation tool (the research study) is used for all activities.

(i) Objectives

IWSA's Education Plan for 2001 produced a media campaign "Keep Mercury from Rising" including newspaper and radio advertisements, posters, and a brochure for use by the facilities. The 2004-2006 MSP will take advantage of the prior year's work by continuing to use targeted advertising to reach communities serviced by waste-to-energy facilities. The objectives for 2004-2006 include the following:

- Continue to raise awareness about mercury-containing products in the home and the proper handling and disposal of these products;
- Provide information and promote local recycling events;
- Continue to build an integrated communications program that leverages opportunities for incremental, free media, and works synergistically with the efforts of individual waste-to-energy facilities.

(ii) Tactics

IWSA will continue targeted advertising to reach communities serviced by the facilities, as well as implement marketing of print advertisements and radio live-read script to run as public service announcements. The facility through IWSA also proposes to expand web capabilities to provide additional tools for residents in target communities to participate in recycling of mercury-containing products. IWSA also will reach out to the media to generate media coverage of the public education campaign.

(iii) Evaluation Tool

The effectiveness of all activities will be measured by a research survey. The 2005 and 2006 surveys will be completed in the first half of

the year shortly after placement of paid media and compared with earlier polls to better define the audience and the effectiveness of the message and media. The polls will be designed to measure positive changes in public attitudes and behaviors, as well as the receptiveness of the message.

Timeline: The surveys are expected to go into the field in May, shortly after completion of publication of print and airing of radio media.

Activity: The survey questionnaire will time out at between six and eight minutes in length, and the study will consist of 400-500 completes, providing a + / - 4.39% error rate at a 95% confidence level. The survey will be executed via random digit dialing from electronically generated phone lists. A series of screen questions would produce the necessary targeted universe of respondents.

Budget Estimate: \$3,600.00

(3) Details of Activities

(i) Advertising

Radio and print advertising will be used. Radio is a targeted medium that provides cost-efficient mass communication and quickly builds frequency of message delivery. Radio added-value programs can provide an opportunity to interact with local communities. Print advertising can be equally effective. Residents look to community newspapers for information on local activities and events. Additionally, these publications are a cost-efficient way to reach the target. Due to allocation of costs between American Ref-Fuel, Covanta Energy and Wheelabrator Technologies, the advertising will be focused on the Boston market, Worcester area and North Andover / Haverhill region.

Timeline: A two-week radio buy in May, 2005 and 2006. Print advertising in the Boston Globe and its supplements to support radio buys.

Activity:

- Radio: IWSA proposes to implement a two-week radio buy in May of each year. The buy would be scheduled to encourage mercury recycling activities and added-value opportunities (e.g., sponsorship of special broadcasts, contests, and free spots stations provide) will be considered in development and negotiation of the buy.
- Print: Advertising will include a limited print effort including regional sections of the Boston Globe that reach the target audience. Individual facilities will supplement the IWSA buy with advertising in local newspapers.

Budget Estimate: \$29,340.00

(ii) Public Service Advertisement (PSA) Marketing and Media Outreach
Strong interest in environmental issues among Massachusetts' residents makes the Campaign and the efforts of IWSA a potentially

interesting story for journalists. The Mercury Campaign's advertising message and presentation in both print and radio provides a strong opportunity to gain free exposure of the ads on radio stations and in newspapers. This is evidenced by the unsolicited request that was received from a radio station in the Boston area for a live-read version of the radio spot for use as a PSA. IWSA and its' consultant, Porter Novelli, will market the PSA to gain free media.

Timeline: Ongoing

Activity: Conduct outreach among Massachusetts media to generate coverage of the Mercury Recycling Campaign and the positive work of WTE providers including visits to editorial boards and news radio talk shows. Identify local print and radio media and promote the use of the Mercury Campaign advertisements as PSAs.

Budget Estimate: \$4,500.00

(iii) Web-based Tools

This internet-based community information resource is available at www.keepmercuryfromrising.org. The videos produced in 2003 will be included in the site. A number of sources are searched periodically for important information that may be included in the website. IWSA will continue to update its site as more information becomes available.

Timeline: May, 2005 and ongoing.

Activity: Continue to build upon web-based capabilities for dissemination of information on local recycling events.

Budget Estimate: \$900.00

(iv) Print Materials

A brochure and poster layout has been developed and is being used by IWSA companies and public officials responsible for disseminating information about mercury recycling. IWSA does not propose to alter the materials, but will make such materials available as needed.

Timeline: Ongoing

Activity: Support facilities as needed with additional print materials.

Budget Estimate: \$900.00

(v) Video

Individual facilities will continue to disseminate the video completed in 2003 to local broadcast and cable outlets, as well as schools, libraries and other public offices.

Timeline: Ongoing

Activity: Dissemination of video as requested by facilities, public groups and the media.

Budget Estimate:

\$360.00

iii) Local Outreach

(1) Goals

The goals of the Local Outreach Program are:

- Inform the public (local residents) within the respective MWC facility's service area regarding the potential harm mercury poses to human health and the environment.
- Identify common products that contain mercury.
- Explain the problem with improperly disposing of products containing mercury.
- Provide information about the local Mercury Recovery Program
- Provide information on the proper methods for handling and disposing of mercury containing products.

Local outreach activities will primarily include informational advertisements in local media, e.g., newspapers, regarding local mercury recycling programs such as thermometer exchange programs, mercury drop-off locations and times, etc., and production and distribution of other materials as needed for informing the public about mercury and the various MSP Programs.

The MSP Administrator has arranged with a news service to place ads in local newspapers. Therefore, a single ad placement will reach most, if not, all local newspapers in the Wheelabrator North Andover Contract Communities.

The MSP Administrator will offer each community a copy(s) of the radio advertisements produced by IWSA on a CD. These radio spots can be used on local cable access, local commercial radio stations as Public Service Announcements or on local school radio stations.

Budget Estimate:

(a) Production and placement of ads in local newspapers for the Mercury Recovery Program, including information about the ongoing Thermometer Exchange Program

• 12 newspaper ads per year for each community (12 x 8 = 96ads).	\$30,000.00
• Additional ads, as needed for special collections	\$ 2,000.00
• Replacement of Educational Boards	\$ 1,500.00
• IWSA Radio Ad CD	<u>\$ 200.00</u>
Total:	\$33,700.00

(3) The MSP Administrator will Distribute the "Keep Mercury from Rising" video to local cable access television stations as well as to the local Mercury

Recovery Program coordinator for distribution to schools, community centers, libraries etc.

(4) Due to the urban nature of most of the contract communities the number of residents reading the local newspaper is low. Resulting in fewer residents seeing the newspaper advertisements. Wheelabrator Saugus proposes to conduct a direct mail campaign to all of the residences (140,000 plus households) in the Contract Communities. The mailing will consist of a six by nine inch postcard. The postcard is bilingual, English and Spanish. The postcard will notify residents of the existence of the Mercury Recovery Program, give information about the ongoing thermometer exchange program and inform them as to where the collection site is located in their community.

Budget Estimate:

\$30,000.00

b) Mercury Recovery Program

(i) Goal

As a result of the implementation of MSP1 each community has their own locally based Mercury Recovery Program. The goal of the Mercury Recovery Program is to provide a centrally located and easily accessible site or sites in each community for the safe disposal of mercury and products containing mercury. Working closely with the Directors of Health, Boards of Health, Department of Public Works, Building Departments, other municipal officials and local residents' successful collection programs have been implemented in each community. The goal for MSP3 is to continue the development of these local collection programs in order to maximize the recovery of mercury and products containing mercury, thereby diverting these items from entering the municipal solid waste stream. The Mercury Recovery Program consists of several components as discussed below.

(ii) Community Based Collection Program

In each participating Contract Community there is at least one and often two or three collection sites. At each site there is a minimum of two five-gallon plastic collection pails, a box of plastic zip lock bags and a mercury spill kit. Once the pail is full of mercury containing devices, the coordinator at that particular site calls the 800 telephone number prominently displayed on the front of the pail for a pickup. Jones Environmental is the service provider for the program and normally will pickup the full pail within two weeks. Upon picking up the full pail, an empty pail is left at the site.

Budget Estimate:

\$10,000.00

(ii) Thermometer Exchange Program

An important component of the overall program has been the Thermometer Exchange Program. This program will be continued throughout MSP3. Each community will be provided a supply of new digital fever thermometers that are to given to residents in exchange for glass mercury fever thermometers that they bring in for safe disposal. Additional digital thermometers will be provided to each community on an as needed basis.

Budget Estimate:

\$8,000.00

(iii) Thermostat Program

According to the Federal Environmental Protection Agency approximately 44,000 thermostats are disposed of annually in the municipal solid waste in Massachusetts. According to the Electrical Manufacturers Association, approximately 80% of thermostats are installed by professional contractors such as plumbers, electricians, boiler technicians and building contractors that perform renovations.

As part of MSP2 an aggressive program for the recovery of thermostats, focusing on contractors was initiated. Working closely with the local Boards of Health, regulations banning the disposal of thermostats in the trash were adopted in twelve of the thirty-six communities serviced by the Mercury Recovery Program. In MSP3 there will be a continuation of this effort to pass the regulations in the remaining communities. Once the regulations are passed, contractors will be notified about the new local health regulation through a direct mail campaign, posters, and flyers distributed by the Health and Building Departments. They will also be informed about the potential effects of mercury on human health and the environment. In addition the mailing, posters and flyers will inform contractors of the financial penalty associated with the improper disposal of thermostats and identify the local site where they can safely dispose of used thermostats.

Budget Estimate:

\$7,000.00

(iv) School Clean Sweeps

The School Clean Sweeps Program was initiated in MSP1. MSP2 saw a continuation of the program. Since the beginning of the School Clean Sweeps Program almost all of the School Systems in the service area have conducted a clean out program. The School Clean Sweeps Program consists of an initial consultation, normally associated with a site visit. All of the schools in that particular school system will be notified by an administrator of the school system of the impending program. Elemental mercury and devices containing mercury are identified and usually consolidated at the high school prior to the actual Clean Sweep. The School Clean Sweep Program is also a replacement program for the most common devices found in the science laboratories and nursing offices, i.e. lab thermometers, sphygmomanometers and barometers. Non-mercury replacements will be exchanged for these three mercury containing items.

MSP3 will continue offering the School Clean Sweeps Program to school systems within the service area. On several occasions, schools that have conducted what was considered a thorough clean-out of mercury and mercury containing devices, have identified additional items containing mercury requiring an additional visit to that particular school system.

Budget Estimate:

\$1,000.00

(v) School Educational Outreach

An effective means of distributing information of interest to residents of a community is through the school system. Routinely, elementary school children are sent home with notes from teachers or with information about particular

school programs. This would appear to be an excellent means of disseminating information about the Mercury Recovery Program to families with small children.

Wheelabrator Saugus proposes to conduct up to four pilot educational outreach programs through selected community school systems. The MRP coordinator in the selected communities will be offered the program for that particular community's school system. The local coordinator will be responsible to obtain permission from the Superintendent of the school system with the guarantee that the appropriate number of pieces of promotional literature will be given to each elementary school to be sent home with each student. Literature specific to the Mercury Recovery Program in that particular community will be printed and delivered to the school system.

Budget Estimate: **\$1,500.00**

(vi) Button-Cell Battery Collection

The Button-Cell Battery Collection Program has been fairly successful in the communities that have implemented the program. The Button-Cell Collection Program is a voluntary program offered to each community. Small collection boxes including a colorful background that attaches to the back of the box is provided to each community. To successfully implement the program it is necessary to have an individual or organization donate their time to place the small collection boxes at particular locations throughout the community and to regularly monitor the boxes and collect the button cell batteries when needed. This has presented the biggest obstacle for the programs implementation in most communities.

The Button-Cell Collection Program will be continued in MSP3. Some pilot programs will be conducted in selected communities in an attempt to identify local individuals or organizations willing to be responsible for the placement of the boxes, monitoring and collection of the button-cell batteries in their community.

Budget Estimate: **\$500.00**

(vii) Miscellaneous (Bulk) Mercury Collection Program

The Bulk Mercury Collection Program was implemented in MSP2. When needed this program has been very beneficial. On three separate occasions large quantities of mercury have been identified, two of which were at private homes. The service provider was sent to each location and collected the mercury thereby assuring that the mercury did not enter the municipal solid waste stream.

The Bulk Mercury Collection Program will be continued in MSP3. The cost of the program will be covered under b(ii) above.

Budget Estimate: **\$1,400.00**

(viii) Fluorescent Lamp Reimbursement Program

The Fluorescent Lamp Reimbursement Program was implemented as a modification to MSP2. It was conducted during the last few months of 2002 and for the entire year of 2003 and the first half of 2004. This program has been fairly

successful in encouraging communities to consider implementing fluorescent lamp collection programs. Normally community fluorescent lamp collection programs collect bulbs from municipal buildings, schools. In some communities the programs are made available to residents and small businesses. The initial program included a cap on the amount of money each community could request for reimbursement based on that community's population. Because of the limitations of the financial cap, some communities have expressed hesitancy in implementing the program.

The Fluorescent Lamp Reimbursement Program will be expanded in MSP3. Communities will continue to be encouraged to implement a fluorescent lamp recovery program. For MSP3 the financial cap will be lifted. The program will reimburse each community for the full cost of recycling their fluorescent lamps. The program will not pay reimbursement for lamps that exceed the amount bid on the state contract, currently 6.5 cents per linear foot. Also, this program specifically excludes street lamps.

Budget Estimate:

\$12,000.00

(ix) Massachusetts Dental Society (MDA) Outreach Program

In cooperation with the Massachusetts Dental Society an educational outreach program will be developed and specifically directed to dentists operating in the contracted communities.

- A mailing will be developed and sent to each dentist informing them of the potential effects of mercury to human health and the environment. The mailing will also include information on where in their community they may bring mercury and devices containing mercury for safe disposal.
- A pickup service will be provided for dentists that may have a large quantity of mercury or devices containing mercury.
- Dentists will be informed as to where they can find information about mercury on the Massachusetts Department of Environmental Protection web site and will be directed to the "Keep Mercury from Rising" web site for locations in their city or town where they can safely dispose of mercury and devices containing mercury.

Budget Estimate:

\$1,000.00

(x) Senior Citizen Sphygmomanometer Exchange Program

Over the past two years eighty-two sphygmomanometers (blood pressure units) have been collected through the Mercury Recovery Program. Each mercury sphygmomanometer contains 110 grams of mercury. For the most part these medical devices have not been included in the local advertisements because of the lack of recognition of the word and difficulty in properly describing the devices in a small ad. According to the local coordinators the sphygmomanometers are primarily brought in by senior citizens. Many senior citizens have blood pressure devices in their homes, many of which are the older mercury clamshell sphygmomanometers.

Wheelabrator Saugus proposes to conduct a pilot Sphygmomanometer Exchange Program in two selected communities in the service area to determine the potential success of such a program and to evaluate the

potential economic impact of conducting such programs. The programs would be offered to the Board of Health in the selected communities. The Health Department would be responsible for promoting the program locally and informing senior citizens of the place, date and time of the program. The Exchange would be time limited, such as for a two-four hour period. New non-mercury sphygmomanometers would be exchanged for mercury containing units. The Exchange would be limited to one per resident.

The pilot Exchange would be conducted within the first six months of MSP3. At the conclusion of the programs their success and the financial impact will be evaluated. If the programs are determined to be successful and affordable then a modification to the MSP3 will be submitted and the program will be offered to the remaining communities.

Budget Estimate:

\$2,000.00

8) Program Administration

The Mercury Material Separation Program will be managed by the Wheelabrator Saugus facility. Wheelabrator Saugus has retained Mr. Patrick Scanlon of Scanlon Associates to conduct the general administration of the Plan. Mr. Scanlon will be responsible for ensuring the elements of the Plan are accomplished and for administering the budget. Mr. Scanlon will also coordinate with MA DEP to minimize duplication of efforts between this MSP and DEP's on-going efforts.

The administration of the Regional Outreach and Education Program will be conducted by the Integrated Waste Services Association (IWSA). IWSA has been retained to manage and provide direction to the professional outreach firm that will be developing the Regional Outreach and Education elements.

9) Measurement and Evaluation

Compliance with the Material Separation provisions requirements of 310 CMR 7.08 will be based upon the implementation of this Plan, e.g., implementation of a regional and local outreach program, offering a thermometer exchange program, etc. This MSP does not estimate the amount of mercury expected to be diverted or the participation rate (i.e., number of people who will be moved to action). It is possible that in coming years, experience will teach whether one activity or another is more effective. Experience and time might help prioritize activities that have the greatest likelihood of success. However, an accurate accounting of the amount of mercury diverted from trash, even in hindsight, is difficult, if not impossible. A person persuaded by this MSP's Outreach Programs to properly recycle mercury may take the product to a resource provided by a waste-to-energy facility, or may use one of a number of other means that are not evaluated by the facility's MSP. A significant amount of the mercury diverted by the Outreach efforts may be disposed or recycled in non-MSP location or as part of other collection programs. Indeed, if the education efforts provided by this MSP are successful, consumers may purchase non-mercury-containing products to substitute for mercury-containing items.

While individual activities may not be accurately measured in terms of accounting for the amount of mercury products recycled at a given recycling or disposal station, the overall efforts of this MSP and the DEP will be evaluated indirectly through the surveys described in the Regional Outreach Program. Over the years, trends will develop in purchasing and disposal methods preferred by the public. Market surveys

may be developed to establish how purchasing and disposal decisions have changed for the better. The MSP Administrator will, to the best of his ability, record the amount of mercury that is collected from MSP programs. An annual report will be prepared and submitted to DEP by February 15, 2005 and 2006.

Table 1. Contract Communities - Wheelabrator Saugus J.V.

Community Population:

Beverly 39,113
 Chelsea 27,425
 Everett 34,773
 Lynn 80,985
 Malden 52,507
 Revere 41,747
 Rockport 7,684
 Saugus 26,802

TOTAL 311,036

July 1, 1999 Population Estimates for Minor Civil Divisions

Source: Population Estimates Program, Population Division, U.S. Census Bureau, Washington, DC 20233

MSP3 Estimated Budget including Plan Development – 2 Years

Number of Contract Communities Served - 8

2003 tons MSW processed: 422,407

Budget Estimate for 2005-06 will change depending on total tonnage processed in 2004

Year	2004-05	2005-06	Total 2years
Administrative Costs			
Scanlon Associates			
Fees & Expenses	\$50,000	\$50,000	\$100,000
WTI Expenses	\$ 3,500	\$ 3,500	\$ 7,000
Programs			
Regional Outreach/Education	\$39,600	\$39,600	\$ 79,200
Local Outreach/Education	\$33,700	\$33,700	\$ 67,400
Postcard Mailing	\$30,000	\$30,000	\$ 60,000
Community Collection/Recycling costs	\$10,000	\$10,000	\$ 20,000
Thermometer Exchange			
Thermometer costs	\$ 8,000	\$ 8,000	\$ 16,000
Thermostat Program			
Printing & Mailing	\$ 7,000	\$ 7,000	\$ 14,000
School Programs	\$ 1,000	\$ 1,000	\$ 2,000
School Educational Outreach	\$ 1,500	\$ 1,500	\$ 3,000
Fluorescent Lamp Reimbursement	\$12,000	\$12,000	\$ 24,000
Button Battery Collection	\$ 500	\$ 500	\$ 1,000
Misc. (Bulk) Mercury Item Collection	\$ 1,400	\$ 1,400	\$ 2,800
Mass. Dental Society Program	\$ 1,000	\$ 1,000	\$ 2,000
Sphygmomanometer Exchange	\$ 2,000	\$ 2,000	\$ 4,000
Sub Total	\$201,200	\$201,200	\$402,400
Contingency @ 5%	\$10,000	\$10,000	\$20,000
Total Costs	\$211,200	\$211,200	\$422,400
Wheelabrator Saugus			
MSP3 - Two Year Budget Estimate			